

irM4 User Manual (LBR, SBR, CQB)

Thank you for your purchase of the iCOMBAT system. This highly realistic law enforcement training tool has been developed to meet the needs of training programs world wide. The system is very dependable and can be used for a variety of exercises suiting the user. The irM4 in particular is modeled after the AR15/M16/M4 platform, which is commonly used by law enforcement and military branches all over the world. The irM4 shares the same fit, form, and function as the real thing, without the danger associated with projectiles. Now you'll be able to train cheaper, faster, and anywhere.

Safety



WARNING

The irM4 is designed to be very realistic in order to meet the needs of law enforcement training programs. Users must take care in keeping the irM4 separate from real firearms at all times. Training with the irM4 and iCOMBAT system must never occur in areas where real firearms and other hazardous equipment are being used. Serious injury or even death may occur. Prior to using the irM4, please ensure that it visibly appears to be in good shape. If something seems loose or odd, contact iCOMBAT.



CAUTION

The developers at iCOMBAT have taken great care in designing a product that can be used safely. The irM4 is unable to fire a projectile and cannot be made to fire a projectile in any way. Instead, an infrared laser is emitted to 'simulate' a projectile. The pulse of infrared light is completely invisible and eye safe. The irM4 is designed to emit this infrared light at safe levels that do not constitute a health hazard. However, as with any light source, we recommend that the user take precautions to avoid any unnecessary exposure such as intentionally aiming the irM4 at someone's eyes or staring down the barrel at close range for extended periods of time.



CAUTION

Always pay attention to the training organizer and safety briefings when instructed. Be aware of any signs or special hazards in area. iCOMBAT doesn't provide any training.



CAUTION

Never modify your irM4 or iCOMBAT gear in any way at any time for any reason. Repairing the irM4 or replacing parts may only be done by a certified iCOMBAT technician or with their permission. Disassembly of the irM4 might damage sensitive electronics or internal components and immediately voids the factory warranty.

Stay clear of magnetics during training to prevent misfires and malfunctions.



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FCC NOTICE

This product contains FCC ID: UYI24

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Instruction to user:

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- * Reorient or relocate the receiving antenna (on radio, TV, or other device).
- * Increase the separation between the equipment and receiver.
- * Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables are used with this equipment or product. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment or product without the approval of manufacturer could void the user's authority to operate this equipment as well as the factory warranty.



International Laser Compliance

Caution - use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Regular *maintenance* is not required nor permitted on the laser emitting components for regular use. Broken laser parts or replacement *services* must be handled by factory certified technicians. Do not operate laser if defective.

Any attempt to cheat or defeat implemented laser safety locks, physical and software, is strictly prohibited. There are no user serviceable parts.

Although safe, as with any type of radiation, do not point the product directly at someone's eyes, or look down the barrel for extended periods of time to avoid harmful exposure. Do not aim laser at reflective objects.

This laser product is designated as Class 1 during all procedures of operation.

iCOMBAT is not responsible for damages that result from improper use of any equipment using any type of laser emitter.

Laser Parameters

Wavelength	980nm
Laser Power for Classification	TBD
Emission Type	Pulsed
Pulse Width	TBD
Pulse Repetition Frequency	TBD
Beam Diameter	TBD
Divergence	TBD

Explanatory Label

Class 1 Laser Product Classified
EN/IEC 60825-1 2007

Complies with US FDA performance
standards for laser products except
for deviations pursuant to Laser
Notice No. 50 dated June 24, 2007.

Manufacturer's ID Label

Universal Electronics, Inc.
640 North Prospect Drive
Whitewater, WI 53190 USA

Model: 800-0XXXXXX, irM4

Product S/N: MXXXXXX

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Liability Statement

This product is surrendered by iCOMBAT with the understanding that the purchaser and or user assumes all liability resulting from unsafe handling or any action that constitutes a violation of any applicable laws or regulations. iCOMBAT shall not be liable for personal injury, loss of property or life resulting from the use of this product under any circumstances. All information contained in this manual is subject to change without notice. iCOMBAT reserves the right to make changes and improvements to products and manuals without incurring any obligation to incorporate such improvements in products previously sold.

Warranty

iCOMBAT warrants that this product is found free from defects in materials and workmanship for a period of one year from the original date of purchase by the initial owner/purchaser. This warranty does not apply to a) defects discovered after purchase which were caused by the unauthorized modifications, alterations or misuse of the purchased product; b) consumable parts such as batteries, o-rings, or other components designed to diminish or may wear out over time; c) cosmetic damage, including but not limited to, scratches, dents, rips, tears, or broken plastics and metals; d) damage caused by accident, abuse, misuse, liquid contact, fire, flood, or other external cause; e) damage occurring from operating product outside of iCOMBAT's published guidelines found in this manual or otherwise; f) damage caused by service such as upgrades and expansions performed by anyone who is not a representative of iCOMBAT; g) iCOMBAT products that have been functionally or capability modified without written permission from iCOMBAT; h) defects caused by normal wear and tear or otherwise due to normal aging of the iCOMBAT product; i) an iCOMBAT product in which the serial number has been removed or defaced, or is otherwise illegible. Determining a product's warranty status is solely the responsibility of iCOMBAT. iCOMBAT will repair or replace, without charge, any of its products that have failed through defect in material or workmanship.

IMPORTANT: Do not open or otherwise disassemble your iCOMBAT product without express written permission from an authorized iCOMBAT representative. Opening or disassembling the product may cause damage that is not covered under warranty.

EXCEPT AS EXPRESSLY STATED HERIN, THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, OF THE PRODUCTS OR SERVICES FURNISHED BY iCOMBAT. iCOMBAT SPECIFICALLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ARISING FROM A COURSE OF DEALING OR USAGE OF TRADE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. iCOMBAT SHALL NOT BE LIABLE FOR, NOR DOES iCOMBAT AUTHORIZE ANY PERSON TO ASSUME FOR iCOMBAT, ANY LIABILITY IN CONNECTION WITH THE PRODUCTS OR SERVICES FURNISHED BY iCOMBAT INCLUDING, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, LIABILITY FOR LOSS OF PRODUCTION, PRODUCT, EQUIPMENT OR PROFITS OR LIABILITY FOR DIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES TO PERSONS OR PROPERTY. PURCHASER AGREES THAT PURCHASER'S SOLE REMEDY FOR LIABILITY OF ANY KIND, INCLUDING NEGLIGENCE WITH RESPECT TO THE PRODUCTS AND SERVICES FURNISHED BY iCOMBAT SHALL BE LIMITED TO THE REMEDIES PROVIDED IN THIS LIMITED WARRANTY.

Service

If you begin to notice odd performance with any of your iCOMBAT gear, please contact iCOMBAT Customer Service at 888-950-1221 right away. You may also email Hero Blast Service at support@icombat.com. Do not operate laser if defective. The laser contains no user serviceable parts.

All iCOMBAT products are covered under a 1 year limited warranty from the time of purchase. If your iCOMBAT product must be serviced, contact iCOMBAT Customer Service at support@icombat.com to receive return instructions. If your product is found to be outside of warranty, iCOMBAT will contact you with any charges before proceeding to repair your product. You are responsible for all shipping charges to and from iCOMBAT for both warranty and non-warranty repairs. In most cases, iCOMBAT can simply send you the parts you require for repair if a technician has approved.

AS STATED ABOVE, YOU ARE RESPONSIBLE FOR ALL SHIPPING CHARGES TO AND FROM iCOMBAT FOR ANY/ ALL SERVICES BOTH UNDER WARRANTY AND NOT UNDER WARRANTY.

iCOMBAT is a division of Universal Electronics, Inc.

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The irM4

Take a few minutes and orientate yourself with the irM4. Become familiar with its functions and design. Users of an AR15 type of rifle should quickly become accustomed to the irM4.



1. Magazine Well
2. Selector Switch
3. Charging Handle
4. Rear Bolt (internal)
5. Status LED and USB Port
6. Magazine Release
7. Fore Grip
8. Collapsible Butt Stock
9. Carry Handle Rear Sight
10. Simulation Weapon Barrel Tip
11. Front Sight
12. Laser Warning Label
13. Serial Number

Battery Power

The irM4 is sold with a minimal but uncertain charge in the lithium ion rechargeable batteries. It may require charging before use. Connect the supplied USB charger to the bottom of the irM4 grip and plug it into a standard wall outlet. A completely dead battery will take approximately 7 hours to fully charge. The Status LED will blink if the batteries are low (when not being charged) and also blink while charging. Charging is complete when the Status LED is solid.



CAUTION

DO NOT YANK USB CORD OUT OF GUN. GENTLY GRAB IT AND REMOVE.

Preparation

The irM4 can only operate when a loaded SmartMag is inserted. Pry open the SmartMag cartridge door from the top. Insert a 12 gram CO2 cartridge into the slot bottom first, at a slight angle. Then snap the top portion of the cartridge into place so that it sits fully inside of the mag. Close the cartridge door with one complete motion to secure and power up the SmartMag. Completely insert the SmartMag into the magazine well of the irM4 until it clicks. It should not freely fall out of the rifle unless the magazine release button is pressed. See *SmartMag User Manual* for more detail.



WARNING

Wear safety glasses while loading and unloading the SmartMag

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Step 1

Before the irM4 can fire, it must be fully cocked. Pull the charging handle back until it stops and release it. It should return to the forward section and the rear bolt of the gun will be locked in position ready to fire. Please note that the charging handle does not move during normal operation and firing.

Step 2

The irM4 has three firing modes: Safe, Fire, and Auto. When the selector switch is set to Safe, the irM4 is off and will not fire. Power on the irM4 by moving the selector switch from Safe to either Fire or Auto. Fire is semi-automatic mode. Each pull of the trigger will fire one round. Moving the switch to Auto puts the irM4 into three-round burst mode. Holding the trigger down will fire three shots.

Step 3

Pulling the trigger will fire the irM4 depending on what mode the selector switch is set to. The irM4 will emit an infrared signal pulse with each shot. This pulse is invisible to the naked eye. The irM4 also has simulated muzzle flash that occurs with each shot. Firing the irM4 will release the cocked rear bolt, which creates a loud noise and recoil. It will return to the cocked position automatically. Scoring occurs when another person's irVest is shot by you.

Worth Noting...

Each shot will reduce the ammunition count from the SmartMag by one. SmartMags come preset at 30 rounds. Changing the CO2 cartridge will reset the ammo count. The irM4 will not function if the SmartMag reaches an ammo count of zero.

Due to the valving system, the SmartMag can be ejected from the irM4 at any time with minimal air loss. The SmartMag will contain its pressure until inserted into an irM4. This means you can fire 20 shots, eject and pass the SmartMag to your partner, so that they can load up their irM4 and fire the remaining 10 rounds.

There is more than enough air pressure in the SmartMag to fully operate the irM4 until the SmartMag count reaches zero, even after ejecting and reinserting it several times.

Using the irM4

Syncing

When using the irM4 for training, the trainee must first sync the irM4 to the their irVest. Syncing the irM4 to the irVest does three things. First, it prevents the trainee from shooting his or her self at close range if the infrared beam happens to reflect off of a nearby surface. Second, it disables the irM4 for a period of 30 seconds when the trainee is hit, through the integrated short range radio. This prevents cheating and removes the trainee from the exercise temporarily. Third, it allows the irVest to keep training stats on the trainee such as accuracy percentages and shot data. This data can be reported to a computer through the Command Center Module (CCM) software and printed out for record keeping.

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To do this, you must have a loaded SmartMag inserted into the irM4. Power on the irVest, wait for it to initialize, and then press the **Gun** button so that it begins blinking. Put the irM4 into Fire mode and shoot at any irVest sensor. Within a few seconds, the irVest will beep to confirm the sync and the **Gun** button will turn solid. You can sync up to three weapons to a single irVest. *Please consult the irVest manual on how to do this and for further instruction.*

Resetting the irM4 Sync

From time to time, you may wish to sync your irM4 to another irVest. In order to do this, the irM4's electronics must be reset to clear out the sync data. To reset the irM4's electronics, put the irM4 into Fire mode and then squeeze and hold the trigger for 5 seconds. The Status LED on the bottom of the grip will blink for three seconds to confirm the reset. This will clear any sync data on the irM4.

Worth Noting...

A synced irM4 will not shut off until the related irVest is powered down. An un-synced irM4 will shut off immediately when switch from FIRE or AUTO to SAFE.

Status LED and Programming

On the bottom of the irM4 grip is a Status LED and USB port, protected by a rubber tab. The USB port is used for charging the irM4 and updating the software. New software updates are released periodically and are free of charge. Updating the irM4 is done through the CCM software. The Status LED offers a quick look at the irM4's status.

- Blinking - Low battery when not plugged in and set to Fire or Auto
- Blinking - Charging when plugged in
- Solid - Fully charged and set to Fire or Auto
- Solid - Fully charged when plugged in
- Off - Set to Safe or dead battery

*Gen2 irM4's have several modes. You can use a **BLUNT, non-sharp** item like a small paperclip to press the mode button through the additional hole located next to the Status LED.*

Green - Outdoor mode. High power, designed for shooting out to 1,000 feet in sunlight. The IR beam is stronger and has a much bigger "blast radius" when used indoors, making it very easy to hit others. The IR beam on outdoor mode is more likely to bounce off of reflective surfaces when used indoors.

Blue - Indoor mode. Lower beam strength for use indoors. IR bounce is greatly reduced and players must aim better to score a hit when used outdoors. Outdoor range is approx. 200 feet.

To update the software on the irM4, open your CCM program and plug the USB cable into your computer and then the irM4. *Take care to gently insert and remove the USB cable.* Be sure your CCM is up-to-date, and run the Software Updater. The irM4 Status LED will blink during programming. *Please see the CCM Manual for full instructions on how to update your rifle.*

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Charging the irM4

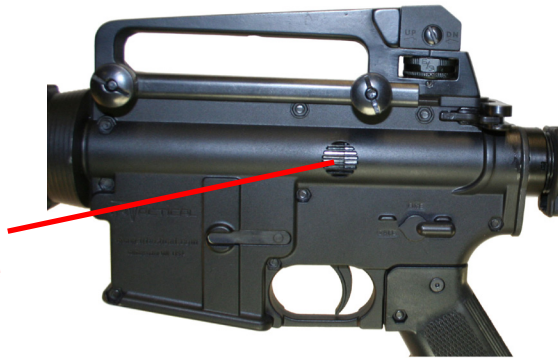
To charge the irM4, plug the supplied 5 volt 1 amp wall charger into an AC outlet and then into the irM4. *The selector switch on the irM4 must be set to Safe and no SmartMag in the gun.* The Status LED will blink slowly to indicate charging, and become solid when the irM4 is fully charged. A completely dead battery will take approximately 7 hours to fully charge. It is acceptable to recharge the battery at any time. *Take care to gently insert and remove the USB cable.*

Maintenance

The rear bolt that moves back and forth during firing requires regular lubrication of the O-ring. Use the supplied packet of lubricating oil to apply a few drops through the rear bolt vents on both sides of the irM4 as shown on next page. Cycle the bolt a few times to distribute the oil. The white O-ring should never be allowed to dry out. *Do not use any other lubricating substance unless approved by iCOMBAT. We recommend replacing the oring all-together after every 20,000 shots.*

Apply 2-3 drops of oil into rear bolt vents
every 2,000 shots or after long term storage

Cycle bolt a few times to distribute oil



Be sure to keep the lens at the tip of the barrel clean and free of debris at all times. Use a standard alcohol wipe or cotton swab to clean. Hard objects may scratch the lens.

Use a damp rag or paper towel to wipe down and clean the irM4. Do not use solvents or other chemicals as this may corrode parts and damage the finish. Applying a very light coat of the included gun oil to the irM4 body and parts will prevent rust.

Performance Specifications

Infrared Pulse

The range of the irM4 varies depending on the environment that it's being used in. The irM4 can shoot a maximum of 900 feet in bright daylight and double that indoors. For specs on the gen 1 barrel, please contact us.

The pulse width (diameter) is approximately 12 inches at 500 feet. However, at closer distances and beyond, the irM4 remains accurate and requires precise aiming.

RF Range

The irM4 is equipped with several radios for communicating with the rest of the iCOMBAT system. A very short range radio establishes communication between the irM4 and a SmartMag, and only works when the SmartMag is fully inserted into the irM4. The second radio on the irM4 communicates with

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the irVest after being synced. The maximum operating range between the irM4 and irVest is 10 feet. The irVest is equipped with a third radio for communicating with the CCM software up to 1 mile away. RF range varies with different terrain and obstacles. It is recommended that trainees keep a clear line of site between the irM4 and irVest, and also between the irVest and CCM when possible.

Battery Life

The irM4 features rechargeable lithium ion batteries. Fully charged batteries will provide about 36 hours of stand-by time or approximately 30,000 shots.

Environmental Conditions

The irM4's design and durability allow it to be used in a variety of environments without issue. The irM4 can be used in temperatures ranging from 32-110 degrees Fahrenheit (0-43 degrees Celsius). Performance may degrade in cooler temperatures due to the nature and physics of CO2. The electronics are all coated to provide moisture resistance. Damp or dry playing areas will not affect the irM4. Using the irM4 in light rain is fine. Be sure to let the irM4 completely dry out before storing away or using again.